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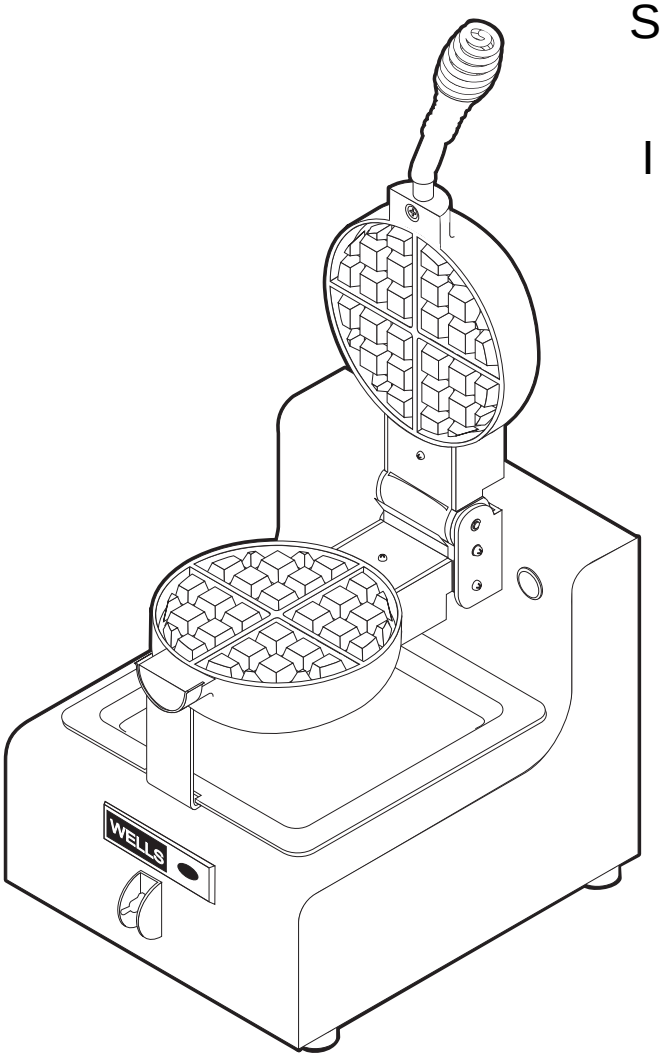
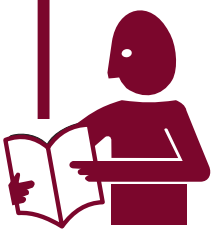
SUPPLEMENTAL SERVICE INSTRUCTIONS for BELGIAN WAFFLE BAKERS

Model BWB-1S





IMPORTANT: WELLS MANUFACTURING PROPRIETARY INFORMATION. DISSEMINATION OF THIS INFORMATION TO ANYONE OTHER THAN WELLS AUTHORIZED SERVICE AGENTS IS STRICTLY PROHIBITED. TECHNICAL CONTENT OF THIS MANUAL IS DESIGNED FOR USE BY QUALIFIED PROFESSIONAL TECHNICIANS ONLY.

PRINTED IN UNITED STATES OF AMERICA

WARNING:
RISK OF PERSONAL INJURY

Installation procedures must be performed by a qualified technician with full knowledge of all applicable electrical and plumbing codes. Failure can result in personal injury and property damage.

WARNING:
ELECTRIC SHOCK HAZARD

All servicing requiring access to non-insulated electrical components must be performed by a qualified technician.
Only qualified technicians are authorized to open any access panel which requires the use of tools. Failure to follow this warning can result in severe electrical shock.

CAUTION:
RISK OF DAMAGE

DO NOT connect or energize this appliance until all installation instructions are read and followed. Damage to the appliance will result if these instructions are not followed.

This appliance is intended for use in commercial establishments only.

This appliance is intended to prepare food for human consumption. No other use is recommended or authorized by the manufacturer or its agents.

Operators of this appliance must be familiar with the appliance use, limitations and associated restrictions. Operating instructions must be read and understood by all persons using or installing this appliance.

Cleanliness of this appliance is essential to good sanitation. Read and follow all included cleaning instructions and schedules to ensure the safety of the food product.

Disconnect this appliance from electrical power before performing any maintenance or servicing.

DO NOT submerge this appliance in water. Do not splash or pour water on, in or over any controls, control panel or wiring.

Never use a wire brush or metal scraper on aluminum components. Use bristle or fiber brush to clean grids.

The technical content of this manual, including any wiring diagrams, schematics, parts breakdown illustrations and/or adjustment procedures, is intended for use by qualified technical personnel.

Any procedure which requires the use of tools must be performed by a qualified technician.

This appliance is made in the USA. Unless otherwise noted, this appliance has American sizes on all hardware.

Information in this manual reflects current production models as of September 1, 2006. Specifications, model numbers, product numbers and data subject to change without notice.

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INTRODUCTION

This manual contains information needed to properly service and repair Wells Belgian Waffle Bakers.

This manual applies to the following Wells Manufacturing models:

BWB-1S

For installation, operation and maintenance instructions, refer to Operation Manual p/n 45257.

SPECIFICATIONS

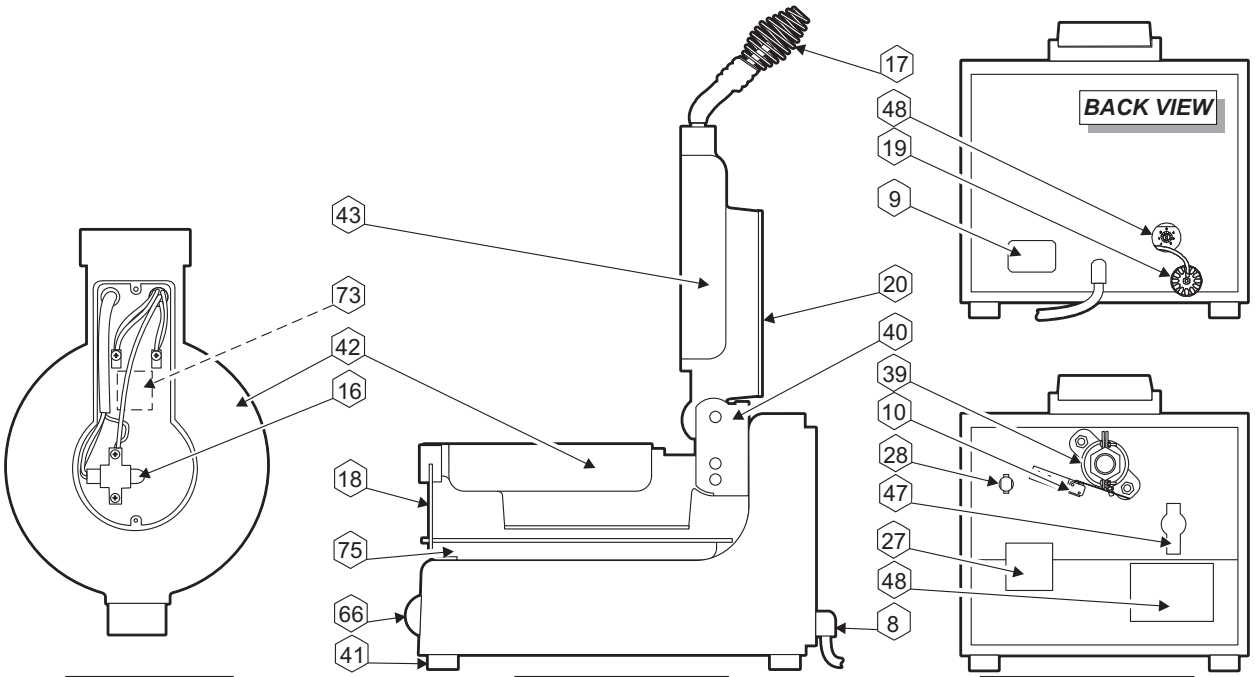
GENERAL DIMENSIONS:

10-1/8" Wide x 14" Deep x 10-9/16" High
Appliance is 23" High with top grid open.

MODEL	STYLE	VOLTAGE 1ø	WATTS	AMPS	POWER SUPPLY CORD
BWB-1S	Single Belgian Waffle Baker	120 VAC	900W	7.5 A	NEMA 5-15P

Refer to Wells General Layout Data sheet, p/n 44666 for current specifications.

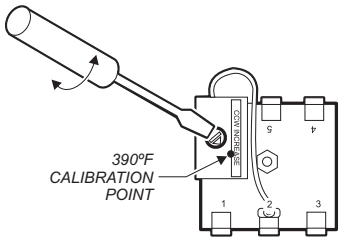
FEATURES & OPERATING CONTROLS



ITEM	DESCRIPTION	COMMENTS
8	POWER CORD	115VAC NEMA 5-15P
9	DATA PLATE	Lists manufacturer information, agency approvals and electrical specifications
10	MICRO SWITCH	Initiates timer when head is rotated to cook position
16	TEMPERATURE PROBE	Thermistor temperature sensor
17	HANDLE ASSEMBLY	Used to safely raise / lower/ rotate grids
18	SUPPORT BRACKET	Supports front of grids
19	HOLE PLUG	Allows access to timer adjustment
20	WIRING COVER	Protects wiring in grids
27	TEMPERATURE CONTROLLER	In concert with thermistor, controls temperature of grids
28	INDICATOR LIGHT	Glows during timed cook cycle
39	BEARING ASSEMBLY	Supports back of grids; allows grids to rotate
40	PIVOT ASSEMBLY	Holds grids in alignment; allows grids to rotate
41	RUBBER FEET	Provide means of leveling waffle baker; provide non-slip support
42	BOTTOM GRID	Cooking element; holds temperature probe (is "top" grid in cook position)
43	TOP GRID	Cooking element (is "bottom" grid in cooking position)
47	BUZZER	Sounds momentarily at end of cook cycle
48	TIMER	Alerts operator at end of cook cycle; NOTE: audio signal only; does not turn off grids
66	POWER SWITCH	Energize / de-energize waffle baker
(73)	(HI-LIMIT THERMOSTAT)	Eliminated on later models
75	DRIP TRAY	Catches excess waffle batter; removable for easier cleaning

A. TEMPERATURE CHECK

1. Desired baking temperature is 390ºF ±5º (200ºC ±3º)
2. Turn power switch *ON* and allow waffle baker to heat for a minimum of 30 minutes. Insert a pyrometer of known accuracy between the closed grid plates and allow the reading to stabilize.
3. Temperature controller is located behind the back panel. Remove the back panel to access. Turn the temperature controller dial clockwise to increase; counter-clockwise to decrease.
   NOTE: Manufacturer's setting (390ºF) is indicated by a black dot on the dial face.



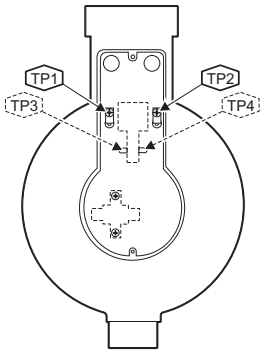
CAUTION:
ELECTRIC SHOCK HAZARD

Live electric circuits may be exposed during these procedures. Take necessary precautions to avoid electric shock.

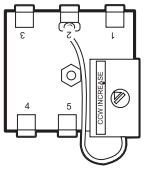
CAUTION:
BURN HAZARD
HOT SURFACES

Equipment surfaces may be hot during these procedures. Take necessary precautions to avoid burns.

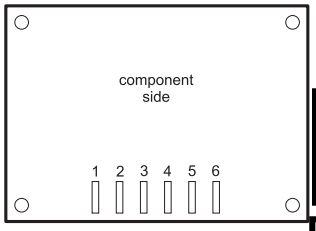
B. ELECTRICAL TEST POINTS



ELEMENT / GRID
bottom shown - top similar



TEMPERATURE CONTROLLER
test points are terminals



TIMER MODULE
test points are terminals

TOTAL AMPS: 7.5A
With waffle baker in the pre-heat mode.

Data for one element:
450 Watts, 3.8 Amps
Resistance of one element **TP1** to **TP2**, is 32W ± 1W. (element cold and wires disconnected)

C. AMPERAGE & RESISTANCE CHECKS

1. Total current may be checked with an inductive amperage tester (Amprobe™ or similar) by encircling wire #4 connected to temperature controller terminal #2.

2. Heating element is integral with the grid casting.
   Disconnect wire #7 to #8 from temperature controller to check resistance of both grids at once.
   Resistance from # 7 to #8 is 16Ω (cold) ± 1Ω. A reading of 32Ω indicates one defective element or a broken element jumper wire.

IMPORTANT:
Always unplug appliance from electric power and momentarily ground all three prongs of the power cord before attempting resistance checks.

OPERATIONAL CHECKS (continued)

CAUTION:
ELECTRIC SHOCK HAZARD

Live electric circuits may be exposed during these procedures. Take necessary precautions to avoid electric shock.

CAUTION:
BURN HAZARD
HOT SURFACES

Equipment surfaces may be hot during these procedures. Take necessary precautions to avoid burns.

NOTE: Resistance of the temperature probe is typically 5 megohm at room temperature, with resistance decreasing as temperature rises.

- A shorted temperature probe will cause a runaway condition.
- An open probe will cause a continuous *OFF* condition.

NOTE:
Newer waffle bakers do not use a hi-limit thermostat. Existing hi-limit thermostats may be safely removed and bypassed without affecting the UL approval.
See page 10.

D. VOLTAGE CHECKS

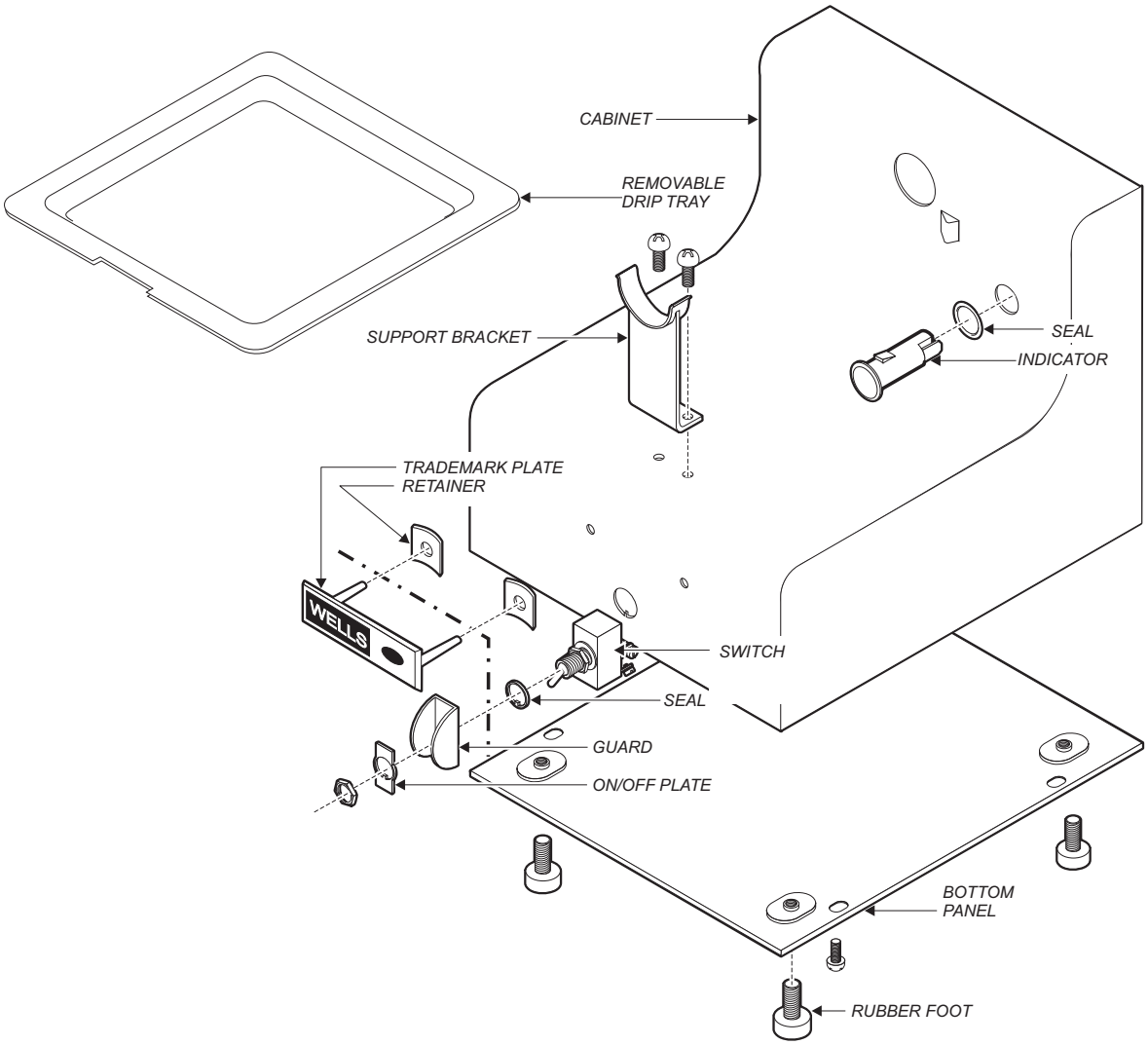
1. Voltage between **temperature controller** terminals **2** & **3** will be 120V any time the power switch (item 66) is turned *ON*. Absence of 120V indicates power switch *OFF* or defective, or a wiring or connector problem.
2. Voltage between **TP1** and **TP2** will be 120V when the unit is calling for heat. Absence of 120V, when heating is required, indicates:
   a.) Power switch defective or *OFF*; or,
   b.) Temperature controller defective or open temperature probe; or,
   c.) Wiring or connector problem
3. Voltage between **TP1** and **TP2** will be 120V when the unit is calling for heat. Failure to heat when 120V is present indicates that the element being tested is defective.
4. Voltage between **temperature controller** terminals **1** & **3** will be 120V when the temperature controller is calling for heat. Absence of 120V, when heating is required, indicates:
   a.) Power switch defective or *OFF*; or,
   b.) Temperature controller defective, or
   c.) Shorted temperature probe or probe wiring shorted (check between terminals **4** & **5**); or,
   d.) Wiring or connector problem
5. **TP3** and **TP4** are found only on waffle bakers equipped with a hi-limit thermostat. The hi-limit thermostat should be removed and bypassed to increase the reliability of the waffle baker.
6. Voltage between **timer** terminals **2** & **3** is 120V any time the power switch is *ON*. Absence of 120V indicates:
   a.) power switch defective or *OFF*; or,
   b.) a wiring or connector problem
7. Voltage between **timer** terminals **5** & **6** is 0V when the microswitch (item 10) is activated. Any voltage other than 0V indicates a defective microswitch, or a wiring or connector problem.
8. Voltage between **timer** terminals **1** & **2** is 120V during the cook cycle. Absence of 120V indicates a defective timer module.
9. An indicator light NOT lit when reading a voltage between **timer** terminals **1** & **2** is 120V indicates:
   a.) loose or defective wiring to the indicator light; or,
   b.) defective indicator light
10. Voltage between **timer** terminals **2** & **4** is momentarily 120V at the end of the cook cycle.
    Absence of 120V indicates a defective timer module.

A. CABINET ASSEMBLY

CAUTION:
ELECTRIC SHOCK HAZARD

Unplug appliance from electric power before removing any panel or access cover.

1. Insert the trademark plate from the front. From the rear of the cabinet, slide retainers over the trademark plate pins. Using a deep socket, tap the retainers down until they are flush with the cabinet surface.
2. Attach wires 1, 2, 3 & 4 to the power switch switch. Thread one nut onto the switch shaft approximately 1/2", then slide the switch seal over the switch shaft. Insert the switch from the rear of the cabinet. Slide the guard, then the on/off plate over the switch shaft. Thread on and tighten the second nut.
3. Work the seal over the body of the indicator light, then press the indicator into the cabinet until it pops securely into place.
4. Install the support bracket.
5. Screw four rubber feet into the bottom panel, then install the bottom panel onto the cabinet.

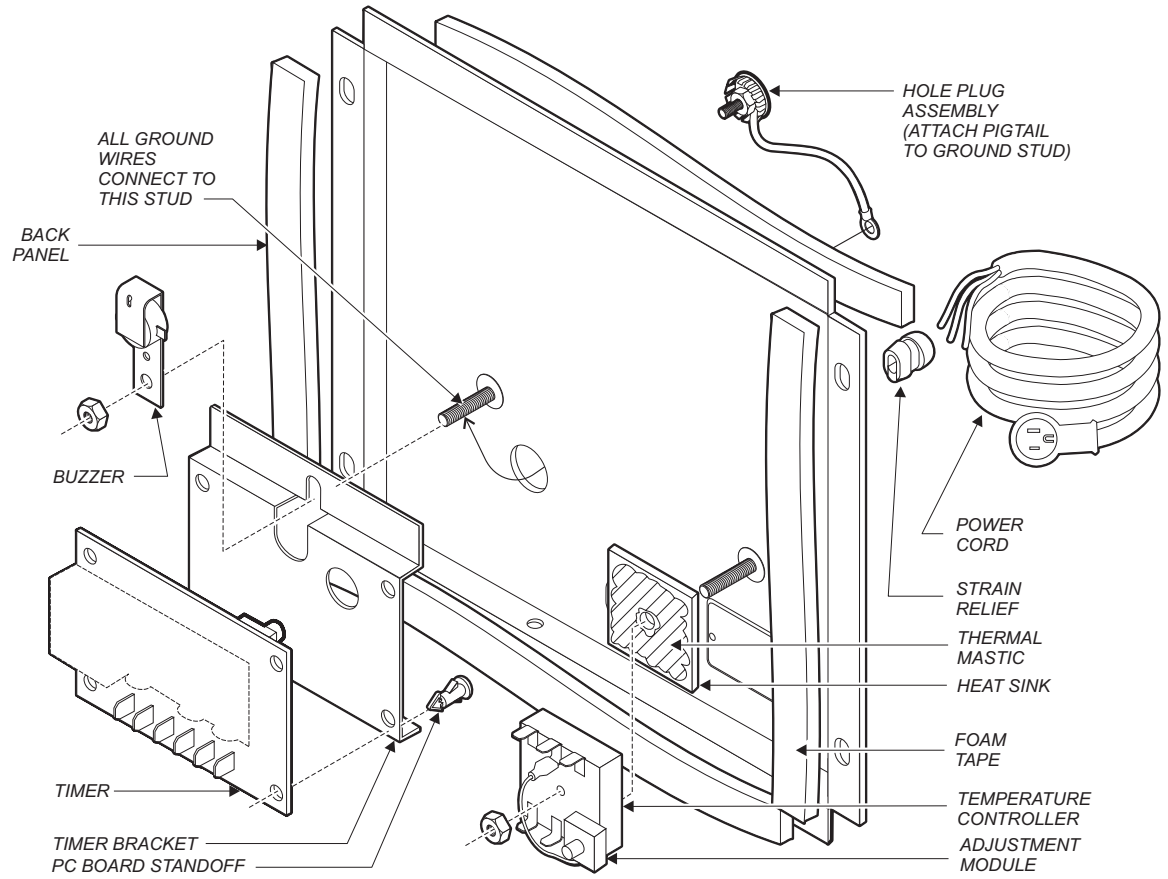


CAUTION:
ELECTRIC SHOCK HAZARD

Unplug appliance from electric power before removing any panel or access cover.

B. BACK PANEL & SOLID STATE CONTROLS ASSEMBLY

1. Apply foam tape to the back panel flange - inside surfaces for the right, left and bottom; outside surface for the top.
2. Insert the power cord into the strain relief, then install the strain relief from the outside of the back panel.
3. From the outside, thread the ground wire of the hole plug assembly thru the large hole in the back panel. Tap the hole plug into place.
4. Press the adjustment module onto terminal 6 of the temperature controller, then secure it with a dab of silicone sealant. Press the wire lead of the adjustment module onto terminal 2.
   Coat both faces of the heat sink with thermal mastic (heat transfer compound). Slide the heat sink, then the temperature controller over the stud closest to the data plate embossing. The adjustment module should be oriented down and toward the outside.
5. Insert four printed circuit board standoffs into the timer bracket. Push them until the button head is flush against the inside surface. Slide the bracket over the stud closest to the large hole, then secure with two screws from the bottom.
6. Slide the buzzer over the same stud as the timer bracket.
7. Lightly thread the nut onto the stud to retain the buzzer. Upon wiring the unit, after all ground wires have been attached to this stud, tighten the nut securely to ensure a positive chassis ground connection.



C. TOP GRID

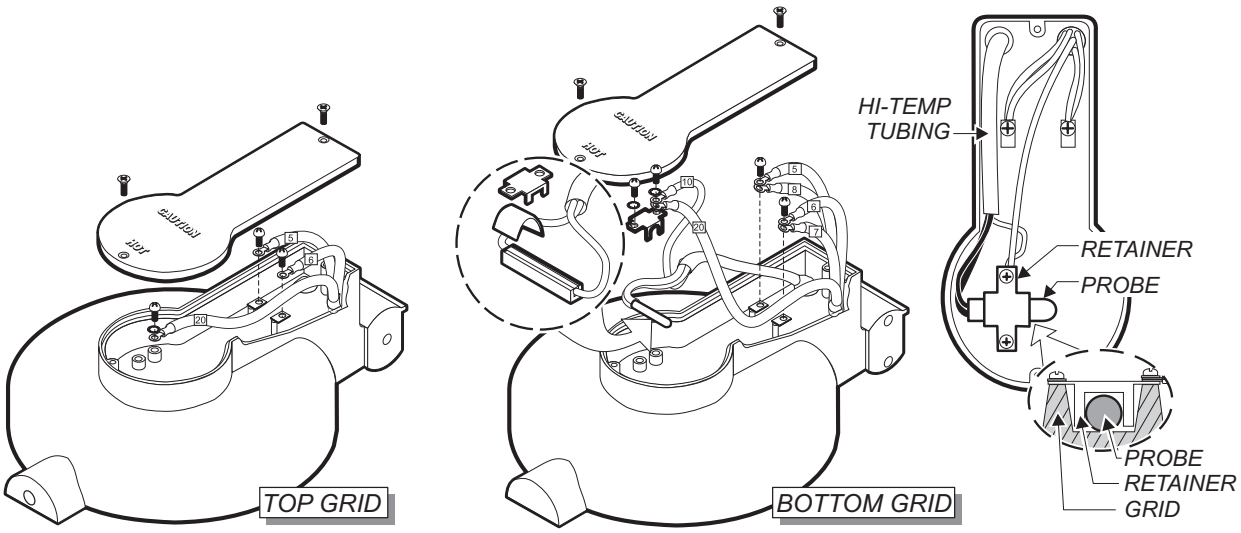
1. Prepare grid casting by applying a small amount of anti-sieze paste to all threaded holes.
2. Feed wires 5, 6 & 20 thru the right feed-thru hole. Attach wires 5 & 6 to the element terminals. Attach wire 20 to the center-most boss at the front of the casting.
3. Pull the wires back until they have only a small amount of slack. Seal both sides of both feed-thru holes with hi-temperature silicone sealant.
4. Install the wiring cover.

D. BOTTOM GRID

1. Prepare grid casting by applying a small amount of anti-sieze paste to all threaded holes.
2. Set the grids waffle-side down, and with the rear portions touching. This positions the grids properly for later assembly.
3. Feed the temperature probe leads and wire 10 thru the hi-temp tubing, then thru the left feed-thru hole.
4. Feed wires 5, 6, & 20 (from top grid) and wires 7 & 8 thru the right feed-thru hole. Attach wires 5 & 8 to one element terminal, and wires 6 & 7 to the other element terminal.
5. Set the temperature probe between the two screw bosses with its round nose pointing to the right. Slide the retainer over the probe. Install the screws with wires 10 & 20 attached to the center-most screw boss.
6. Route wires as shown. Pull the wires and hi-temp tubing back until they have only a small amount of slack. Seal both sides of both feed-thru holes with hi-temperature silicone sealant.
7. Install the wiring cover.

CAUTION:
ELECTRIC SHOCK HAZARD

Unplug appliance from electric power before removing any panel or access cover.

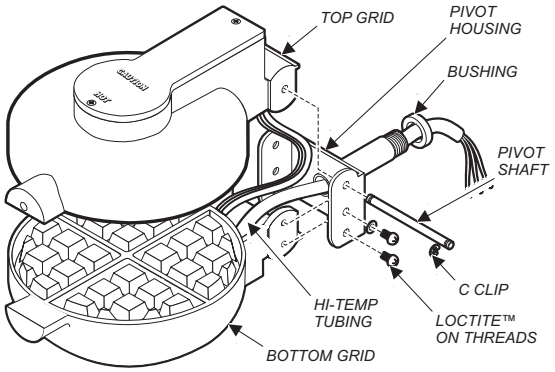


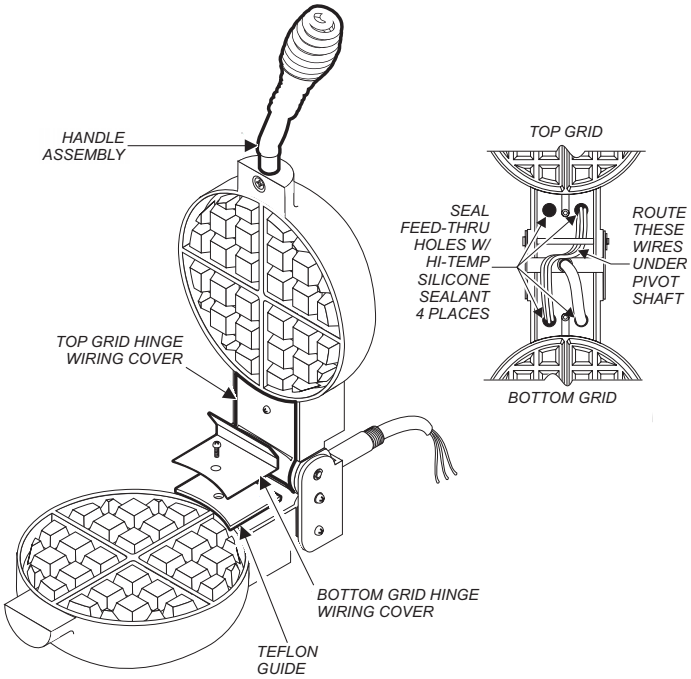
CAUTION:
ELECTRIC SHOCK HAZARD

Unplug appliance from electric power before removing any panel or access cover.

E. GRID ASSEMBLY

1. Turn and position the grids so that the waffle-sides are facing each other. Thread the hi-temp tubing thru the shaft of the pivot housing. Attach the pivot housing to the bottom grid with screws (bottom hole) and screws with washers (middle hole). Use anti-sieze paste on the screw threads, but do not tighten the screws yet.
2. Insert the pivot shaft thru the pivot housing and top grid, making sure wires 5, 6 & 20 are routed between the pivot shaft and the body of the top grid casting. Secure the pivot shaft with “C” clips on each end.
3. Verify that the top and bottom grids match at the mating surfaces, then tighten the screws securing the pivot housing to the bottom grid.
4. Thread the brass bushing over hi-temp tubing and the shaft of the pivot housing. Press the bushing all the way against the face of the pivot housing.
5. Install the handle asembly in the top grid. Use Loctite on the screw threads.
6. Install the top grid hinge wiring cover, then the teflon drip guide and bottom grid wiring cover. Use anti-sieze paste on the screw threads.
7. The top grid should pivot smoothly. Gently bend the upper lip of the bottom grid hinge wiring cover until the gap between wiring covers is maintained thru the entire swing of the top grid, and the top grid closes completely on the bottom grid.



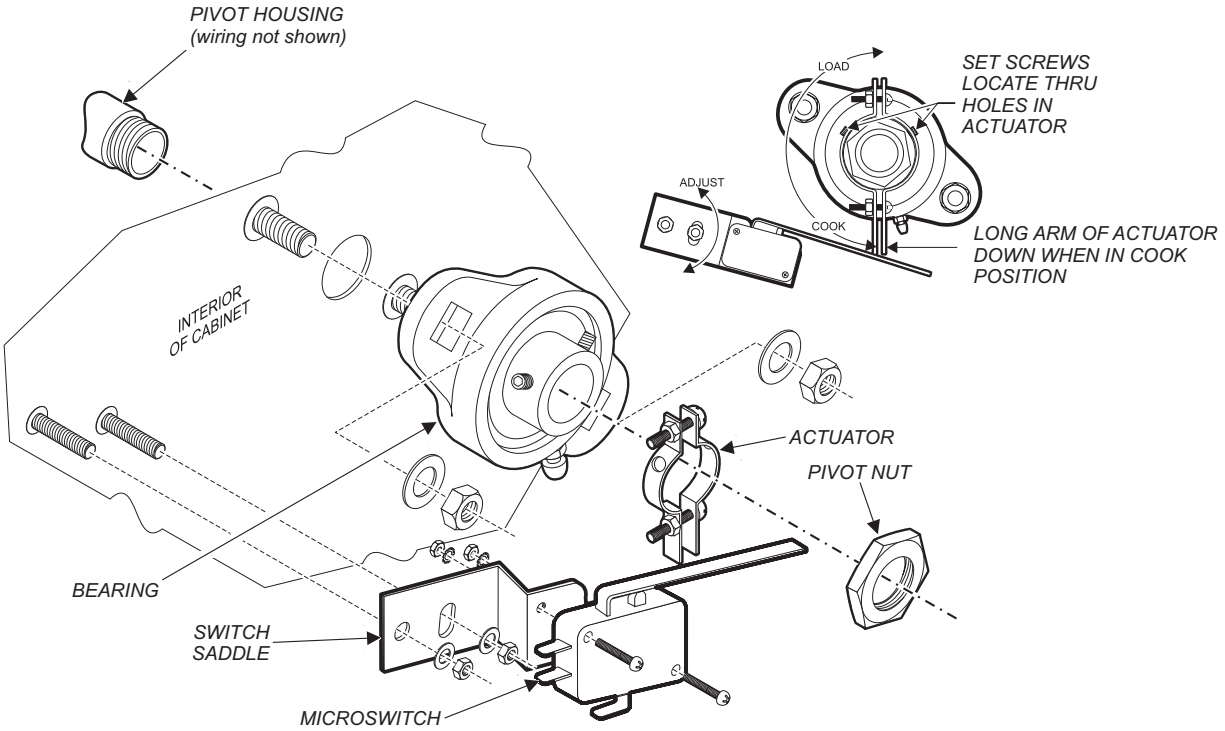


F. PIVOT BEARING ASSEMBLY

1. The pivot bearing may be out of alignment as it comes from the box. Tap the collar of the bearing with a plastic hammer until the axis of the bearing is perpendicular to the base. Attach the pivot bearing to the inside of the cabinet. The zerk fitting points downward. Use Loctite on the threads.
2. Looking into the back panel, turn the bearing until the set screws are at the 10:00 and 2:00 position. Assemble the actuator to the pivot bearing. The set screws will protrude thru the holes on the actuator halves. The long arm of the actuator should point down, with the screws pointing left.
3. Thread the wires of the grid assembly thru the pivot bearing from the outside, then insert the pivot housing shaft into the pivot bearing. Thread the actuator nut on the pivot housing shaft using Loctite on the threads. Tighten the pivot nut until the grid assembly rotates freely, but latches securely into the detent.
4. If not already present, assemble the support bracket to the cabinet. Make sure the front of the grid assembly rides smoothly in the support.
5. Rotate the grid assembly to the *COOK* position. Align the long arm of the actuator to point straight down, then tighten the set screws.
6. Using Loctite on the threads, assemble the microswitch to the switch saddle. Install the switch assembly into the cabinet. Adjust the position of the microswitch until a single *CLICK* is heard from the microswitch as the long arm of the actuator contacts the microswitch arm, and the grid assembly rotates into the cook position detent.

CAUTION:
ELECTRIC SHOCK HAZARD

Unplug appliance from electric power before removing any panel or access cover.



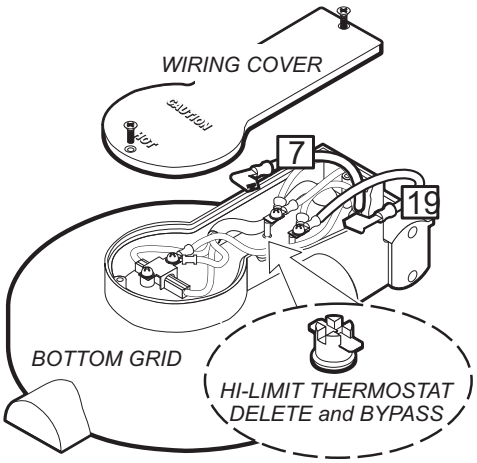
CAUTION:
ELECTRIC SHOCK HAZARD

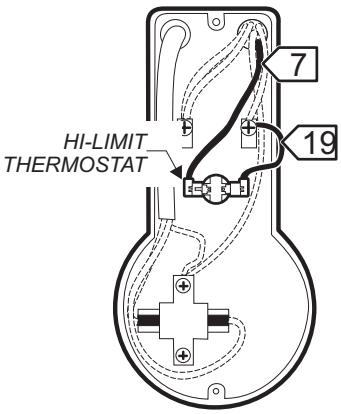
Unplug appliance from electric power before removing any panel or access cover.

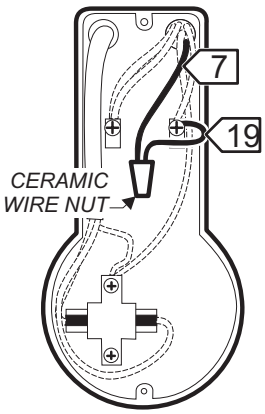
IMPORTANT:
Wells BWB-1S has been tested and approved by UL for use without the hi-limit thermosat. The hi-limit thermostat may be removed from existing units and its circuitry bypassed without compromising the UL listing for this appliance.

G. BYPASS HI-LIMIT THERMOSTAT

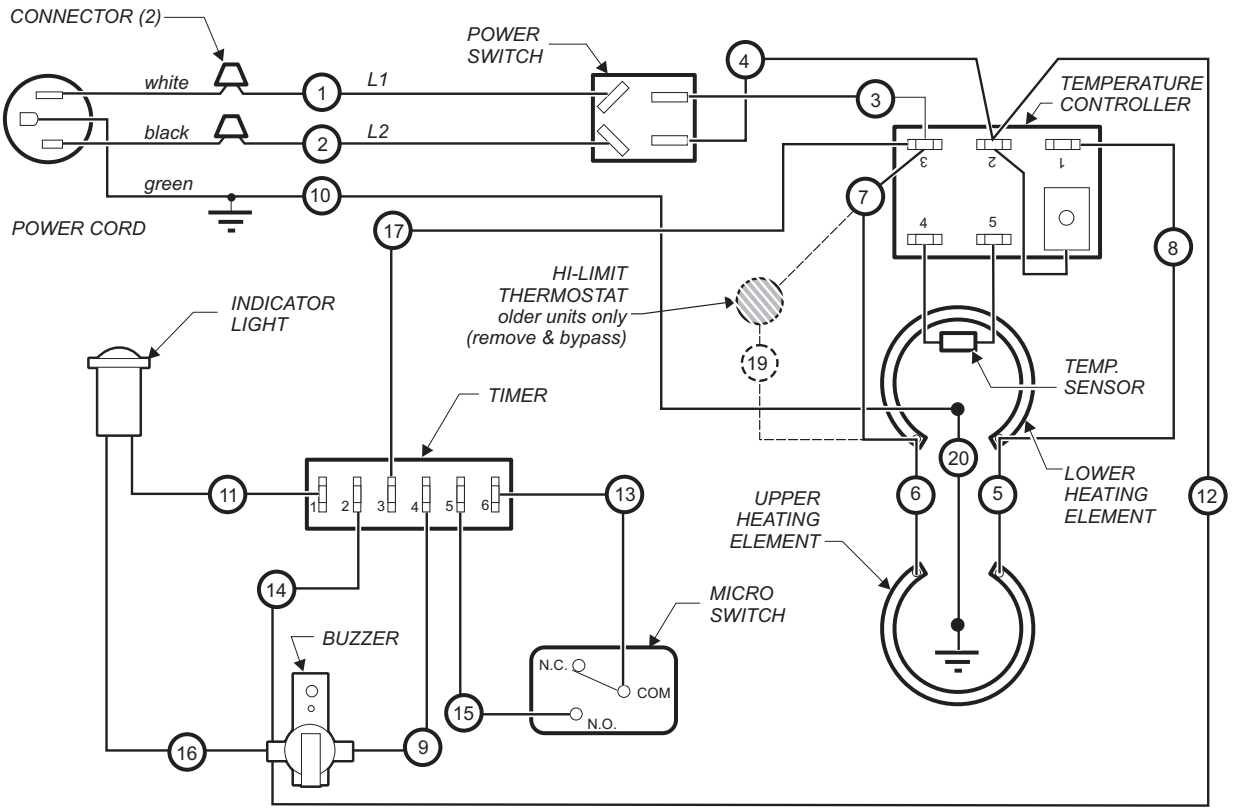
1. The hi-limit thermostat in this Belgian Waffle Baker has been found to be unnecessary. Wells BWB-1S has been tested and approved by UL for use without the hi-limit thermosat.
2. All units requiring service, whether in or out of warranty, should have the hi-limit thermostat bypassed.
3. With the power cord unplugged, remove wires 7 & 19 from the hi-limit thermostat (located in the bottom grid).
4. Cut the push-on terminals from wires 7 & 19, as close to the terminals as possible.
5. Remove 1/2" of insulation from the ends of wires 7 & 19. Connect the wires together using a ceramic wire nut of the appropriate size.
6. Plug the waffle baker in, and test for proper operation.







WIRING DIAGRAM FOR BWB-1S
120 VAC



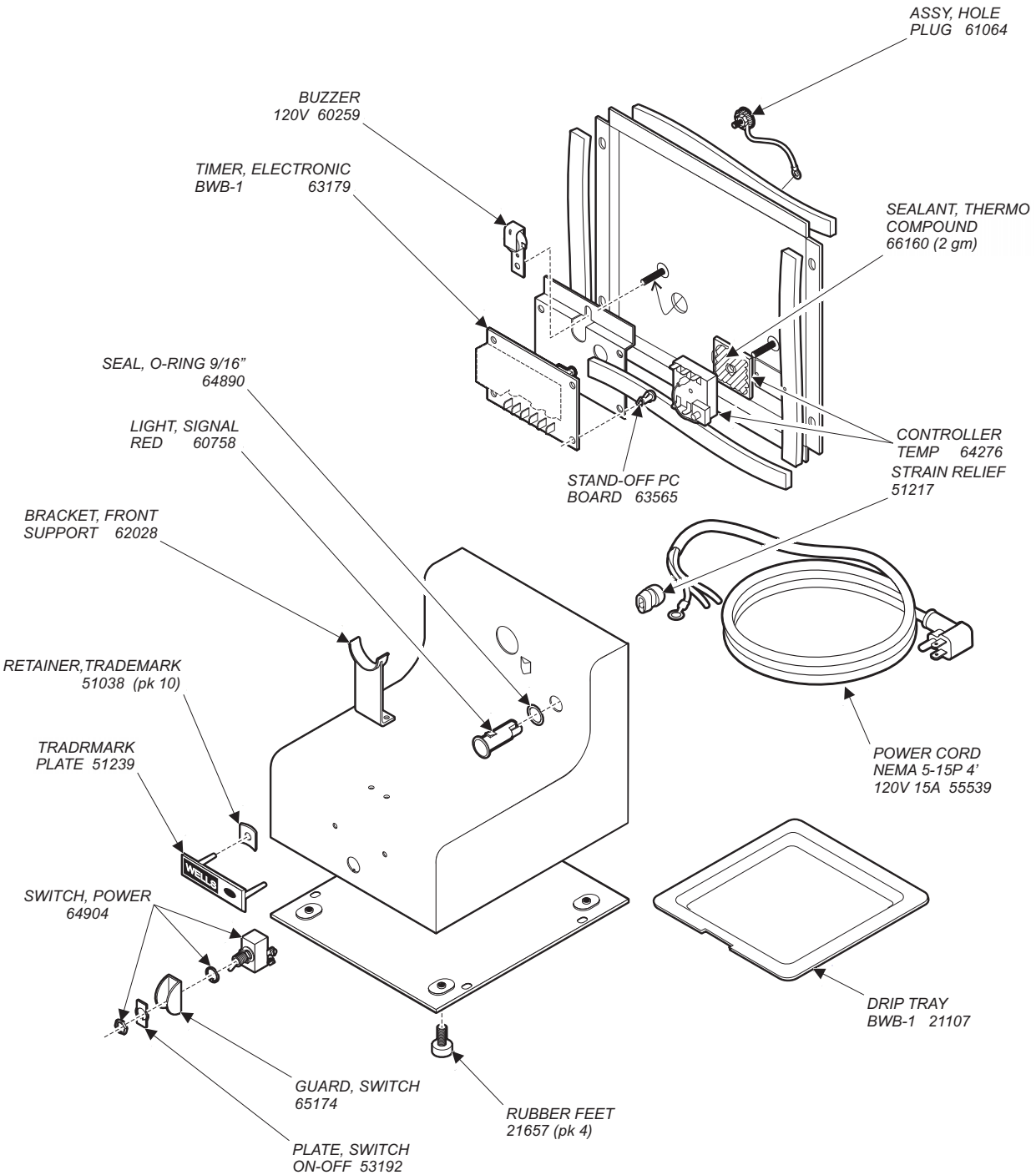
VOLTS	AMPS 1Ø
120	7.5

50/60 Hz

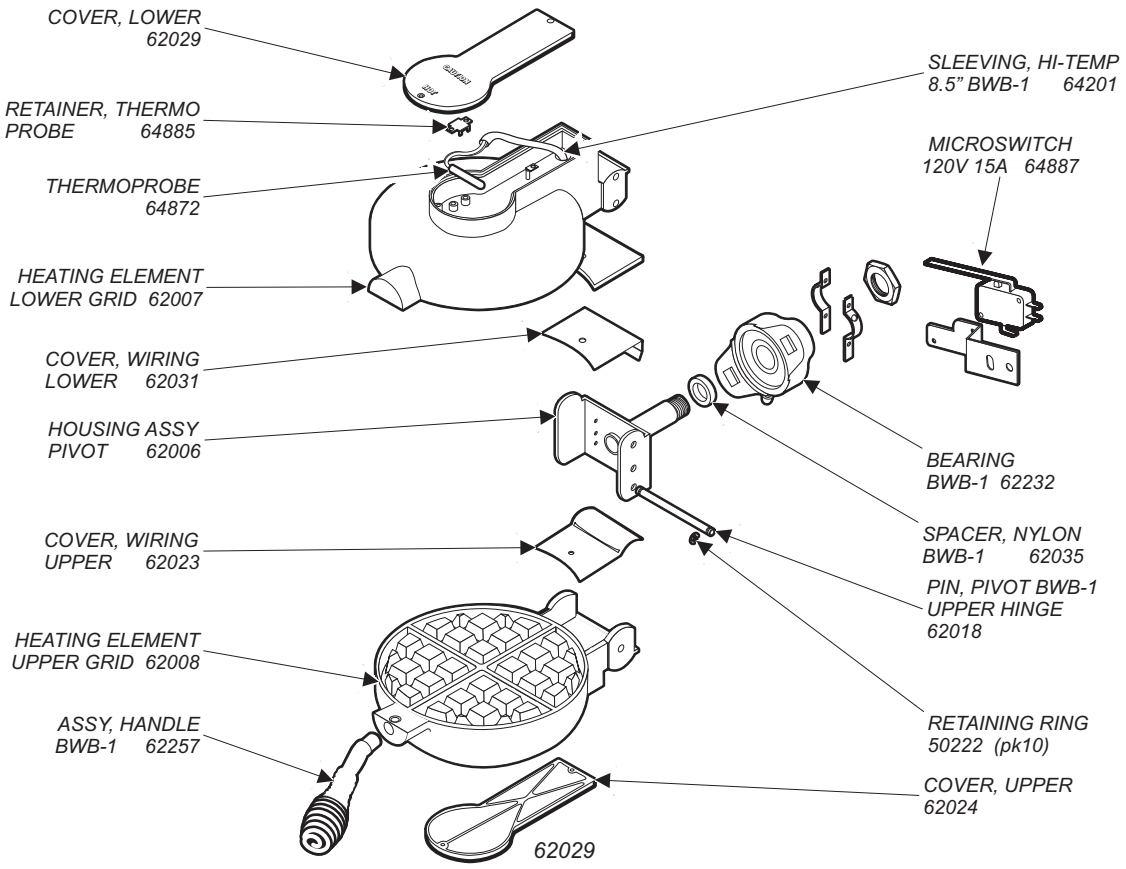
p/n 44867 Rev.D

EXPLODED VIEW

BWB-1S CABINET



BWB-1S GRIDS


COVER, LOWER
62029
RETAINER, THERMO
PROBE 64885
THERMOPROBE
64872
HEATING ELEMENT
LOWER GRID 62007
COVER, WIRING
LOWER 62031
HOUSING ASSY
PIVOT 62006
COVER, WIRING
UPPER 62023
HEATING ELEMENT
UPPER GRID 62008
ASSY, HANDLE
BWB-1 62257
SLEEVING, HI-TEMP
8.5" BWB-1 64201
MICROSWITCH
120V 15A 64887
BEARING
BWB-1 62232
SPACER, NYLON
BWB-1 62035
PIN, PIVOT BWB-1
UPPER HINGE
62018
RETAINING RING
50222 (pk10)
COVER, UPPER
62024
62029

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